

IN THE SPECIFICATION:

On page 2, lines 8-26, please amend the paragraph to read as follows:

After making a 130,000 km road test and a real car collision, ~~the present inventor found~~ the following defects were determined in the above-mentioned safe seat in the front of the motor vehicle: First, the ability of the small bearings that can endure the pressure radially is small and the outer rings often break; however, conventional roller bearings that can endure high pressure cannot be adapted to the cars, because its inner and outer rings have too large diameters and they cause the seat to have too large a bulk and a too heavy weight. Second, when the test car ran to more than 30,000 km, the rails of the seat accumulated dust, oil stains and rust, so that the bearings could not move in the rails whose height was 0.03-0.08mm normalized tolerance over the bearings. Third, because the reinforcing support could not rotate when the motor vehicle collided at a high speed, the reinforcing support was locked by the regulate plate, and the rails of the seat and the front shaft deform, so the lock pin for locking the seat could not be released.

Fourth, when such a seat is mounted in a car, the rails inconvenience the passengers in the back seats.

On page 3, before line 3, please insert the following paragraphs:

This object, as well as other objects which will become apparent from the discussion that follows are achieved, in accordance with the present invention, by providing a mount for an anti-crash front safety seat for a motor vehicle having a cab for occupants, in which the mount comprises the following elements:

a fixed frame fixedly connected to a floor of the cab of the motor vehicle, said fixed frame having at least two elongate rails, the longitudinal direction of the rails of the fixed frame being the same as that of the motor vehicle;

a movable bracket supported movably on the rails of the fixed frame, said bracket being mounted below and adapted to be attached to the seat and backrest;

a front shaft and a back shaft passing through shaft holes in said bracket and positioned in the rails of the fixed frame;

a brake assembly, fixedly connected to at least one of the floor of the cab and said fixed frame, for applying a braking force to said back shaft to inhibit movement thereof; and

a seat control system for locking said bracket to the fixed frame, so as to lock the seat and backrest in position during normal driving of the motor vehicle, and for releasing said bracket, and in turn the seat and backrest, for rearward movement in the event of a crash of the motor vehicle.

When the motor vehicle incorporating the anti-crash front safety seat according to the invention collides with another object, the seat will have a tendency to move forward due to inertia. At first, the kinetic energy of motion will be absorbed or transformed into elastic potential energy (elastic deform energy) of a metal stock plate and a front buffer band on the seat mount. Then, as the speed of the motor vehicle is rapidly reduced, the forward inertia force of the seat becomes smaller too and the pressure applied to the metal stop plate and the buffer band is reduced. Eventually, the elastic potential energy of the metal stop plate and the buffer band will produce a

rearward force that exceeds the forward force of inertia and the seat will begin to move backward. In addition, if the motor vehicle is equipped with an airbag, the force of the airbag against the person seated in the safety seat will also assist in the backward movement of the seat. When this occurs, the brake assembly will inhibit the rapid rearward movement of the seat.

On page 3, lines 3-31 to page 4, lines 1-6, please amend the paragraph to read as follows:

The More particularly, the present invention concerns an anti-crash safety seat in a motor vehicle ~~according to the present invention, which includes~~ a backrest, a device that regulates a comfortable driving (or comfortable riding) distance between a seat and a steering wheel and distance between a driver and an instrument panel, and a safety belt; ~~wherein the~~ The seat further comprises a fixed frame fixedly connected to a floor of a cab of the motor vehicle, the longitudinal direction of the fixed frame being the same to that of the motor vehicle, wherein the fixed frame comprises a front energy-absorbing buffer band, an energy-absorbing

plate provided on the top surface thereof, energy-absorbing bearings provided on the front end thereof, a pin hole provided in one front side thereof, two rails parallel each other formed in both sides thereof without a closing plate on the back end thereof, an iron plate for limiting the distance the seat can displace backward and for reinforcing the fixed frame, an energy-absorbing device provided on the back part of the fixed frame, a movable bracket provided movably on the fixed frame, the backrest mounted above the movable bracket, wherein the top surface of the movable bracket is supported on the energy-absorbing bearings, a metal sleeve for positioning the lock pin being provided on the front side thereof in the position corresponding to said pin hole, as well as front and back shaft holes spaced with each other provided in both sides thereof in the positions corresponding to the two rails of the fixed frame, a front shaft and a back shaft passing through the shaft holes in the movable bracket and positioned in the rails of the fixed frame, inner bearings of the front shaft provided on the front shaft for contacting the upper surface of the rails, and two inner bearings of the back shaft provided on the back shaft which are supported by the lower surface of the rails, and a seat

control system provided on the front part on one outside of the movable bracket, the control system locking the movable bracket having the backrest to the fixed frame by the lock pin passing through the metal sleeve and pin hole, so as to lock the seat, and releasing the seat by taking the lock pin out of the pin hole.

On page 5, lines 26-31, please amend the paragraph to read as follows:

Preferably, the back shaft further comprises two outer energy-absorbing bearings provided outside of the rails, the energy-absorbing device comprises energy-absorbing racks provided on both sides of the moveable bracket and energy-absorbing ~~nails~~ rods in contact with the top portion of the energy-absorbing bearings of the back shaft, forming a brake assembly.

On page 6, lines 27-31, to page 7, lines 1-3, please amend the paragraph to read as follows:

Preferably, the energy-absorbing device on the back part of the moveable bracket comprises energy-absorbing racks on both sides of the moveable bracket, one energy-absorbing plate positioned on the top surface on the back part of the moveable bracket and energy-absorbing ~~nails~~ rods for connecting the energy-absorbing plate to both sides of the energy-absorbing racks, in which the hardness of the moveable bracket is stronger than that of the energy-absorbing plate.

On page 7, lines 13-16, please amend the paragraph to read as follows:

Preferably, the energy-absorbing rack consists of a thin channel section steel and cover plate fixed on one end thereof, and one end of the cover plate has a notch for the movement of the energy-absorbing nail rod.

On page 9, lines 1-12, please amend the paragraph to read as follows:

Under normal conditions, the lower surface of the front part of the moveable bracket is pressed directly in the energy-absorbing bearings (the inner bearings for the front shaft does not contact with the lower rail portions, while contacting with the upper rail portions) above the energy-absorbing plate of the fixed frame, and the outer energy-absorbing bearings for the back shaft is also pressed by the energy-absorbing nails rods of the back energy-absorbing rack, so the stability of the seat is guaranteed. As a result, the bearings under the load comprising: the inner bearings for the back shaft that contacts with the lower rail surface and the energy-absorbing bearings above the energy-absorbing plate on the fixed frame.

On page 9, lines 13-31, to page 10, lines 1-2, please amend the paragraph to read as follows:

When the motor vehicle is collided, owing to the effects of the backrest and so on, the back part of the movable bracket is subjected to a force inclined upwards and the front part thereof is subjected to a force inclined downwards. The components under the force in the back are:

the outer energy-absorbing bearings for the back shaft, the back energy-absorbing racks on both sides of the fixed frame and the energy-absorbing ~~nails~~ rods on the racks. The components under the force in the front are: the metal stop plate on the front end of the fixed frame, the upper energy-absorbing plate, the energy-absorbing bearings on the plate and the front portion of the moveable bracket. Because the moveable bracket is harder than the energy-absorbing plate of the fixed frame, the energy-absorbing plate and so on will deform, in order to absorb some kinetic energy of the seat and transform a part of the kinetic energy into the elastic potential energy of the energy-absorbing plate and the metal stop plate on the front end of the fixed frame. At this time, the bearings on the front shaft is away from the upper rail portion and contact with the lower rail portion. In the similar way, the back energy-absorbing racks on both sides of the fixed frame and so on deform slightly under the effects of the energy-absorbing ~~nails~~ rods and absorb the energy.

On page 11, lines 23-30, to page 12, lines 1-2, please amend the paragraph to read as follows:

1. Comparative to the prior art, the present invention is further designed to have a buffer band, a horizontal energy-absorbing plate (relatively thin iron plate), energy-absorbing bearings, a energy-absorbing rack, energy-absorbing ~~nails~~ rods, energy-absorbing bearings mounted on the outside of the back shaft. When the motor vehicle is collided, the above-mentioned components and other small fittings deform, absorb and transform most kinetic energy of the seat. So the key components, such as rails, a moveable bracket, bearings for shafts, bearings in the rails and so on can be protected.

On page 15, lines 2-8, please amend the paragraphs to read as follows:

Figure 1 is a ~~front~~ side view and electrical schematic diagram of a first embodiment of an anti-crash safety seat for a motor vehicle according to the present invention, in which ~~a backrest, a cushion and~~ a device that regulates a comfortable driving distance between a driver and a steering wheel and a distance between a driver and an instrument panel in a normal state ~~are~~ is removed.

On page 15, after line 9, please insert the following paragraph:

Figure 2A is a cross-sectional view taken along the line x-x of Figure 2.

On page 15, lines 20-21, please amend the paragraph to read as follows:

Figure 7 is a ~~front~~ side view of the control system of the first embodiment of the seat, whose housing is removed.

On page 16, lines 8-12, 16-17 and 20-24, please amend the paragraphs to read as follows:

Figure 13 is a sectional view of the ~~back~~ rear shaft of the first embodiment of the seat along the central axis, in which the ~~back~~ rear shaft is assembled with fittings.

Figure 14 is a ~~front~~ side view of a second embodiment of the seat according to the invention.

Figure 16 is a view of the third embodiment of the seat, seen from the ~~front~~ side of the seat.

Figure 18 is a back top view of a control system of a fourth embodiment of the seat, according to the invention, ~~in which the housing of the seat control system is removed.~~

Figure 19 is a front side view of the control system of the fourth embodiment of the seat, ~~in which the housing of the seat control system is removed.~~

On page 17, lines 2-31 to page 18, lines 1-2, please amend the paragraph to read as follows:

In the Figure 1, and in all the other figures, a ~~backrest, a cushion and a device that regulates a~~ comfortable driving (or comfortable riding) distance between a seat and a steering wheel and a distance between a driver or rider and an instrument panel in a normal state are removed from an anti-crash safety seat in a motor vehicle in order to be seen more clearly. A The anti-crash seat, shown in the Figure 1-3, comprises a movable bracket B, which supports the seat and backrest, a fixed frame G and a seat control system C which is provided on one side of the movable bracket B, ~~in which a the seat and backrest and so on (not shown) are mounted above the movable bracket B.~~ The

movable bracket B, having a substantially C-shaped cross-section, is supported movably on the fixed frame G. Shown as Figures 2, 2A and 6, the fixed frame G on its back part has two parallel upper rail portions 4, 4' and two parallel lower rail portions 15, 15', so as to form two parallel rails G', G'' (Figure 1). The fixed frame G on its front part has a front metal energy-absorbing stop plate A and a front energy-absorbing buffer band B' and energy-absorbing bearings H, H'. The energy-absorbing bearings H, H' are fixed on the front portion of the energy-absorbing plate 5 of the fixed frame G. In addition, the fixed frame G on its bottom part comprises a front fixed plate 16 and a back fixed plate 1, an iron plate 14 for limiting the distance that the seat can displace backward and for reinforcing the fixed frame, as well as a pin hole 20 with a filleted rectangular cross-section L for locking the seat and back energy-absorbing racks 2 and 2' provided on both sides. The fixed frame G is screwed tightly on the floor of a cab of a motor vehicle via screws passing through the fixed plate plates 1 and 16. Energy-absorbing nails rods 9, 9' contacting with the outer energy-absorbing bearings 3, 3' of the back shaft and nuts 7,8, for regulating the distance

between the energy-absorbing nails rods and the energy-absorbing bearings of the back shaft, and therefore the brake pressure applied to the bearings 3, 3', are provided on the back energy-absorbing racks 2 and 2'. The rods 9, 9' and bearings 3, 3' therefore form an adjustable brake assembly for inhibiting movement of the back shaft.

On page 18, lines 2-31 to page 19, lines 1-5, please
amend the paragraph to read as follows:

As shown in Figures 1-9, screw holes C', C'' for fixing the control system of the seat, a metal sleeve 17 for positioning the lock pin, a round hole 18 being passed through by the front shaft D, a round hole 18' being passed through by the middle shaft M and a round hole 19 being passed through by the back shaft E are provided on one side of the moveable bracket B which has a C-shaped cross-section. A step U for fixing the sleeve is provided on one end of the outside of metal sleeve 17 for positioning the lock pin, and the length of the step U is smaller than the thickness of the moveable bracket B. The step U is inserted into the one front side of the moveable bracket and is fixed

thereto. The length of the portion n of the metal sleeve that has a small diameter is larger than the thickness of the side of the moveable bracket B. The diameter of the portion n is slightly larger than that of the big end of the lock pin 27, while it is smaller than that of the reset spring 28 sheathing on the lock pin. The length of the portion p of the metal sleeve that has a big diameter is smaller than that of the portion n having a small diameter. The diameter of the portion p of the metal sleeve that has a big diameter is larger than the outer diameter of the reset spring 28 sheathing on the lock pin. The reset spring for the lock pin is provided in the portion p of the metal sleeve that has a big diameter and abuts against the step wall V locating the intersection of the portions p,n. Pin openings J and J' are provided in the top side of the moveable bracket B for reducing the weight. Normally, the front shaft D, the middle shaft M and the back shaft E pass through the round holes 18, 18' and 19 in the moveable bracket B and are mounted in the two rails G' and G'' paralleling each other in the fixed frame G by the bearings provided on the shafts. The distance L between the height of the two rails and the outer diameter of outer bearing rings

of the inner bearings of the front, middle and back shaft provided in the rails is larger than the normalized value that is required by normal mechanical movement. The value preferred length of the distance L is 10mm.

On page 22, lines 15-31, to page 23, 1-17, please amend the paragraph to read as follows:

Under normal conditions, after the big end of the lock pin 27 is inserted into the pin hole 20 of the fixed frame G from the metal sleeve 17 of the movable bracket B, the small end of the lock pin 27 is sustained against the bearing 25 on one side of the metal block 23 of the control system C, the metal block 23 is integrally connected to the manually operated control hammer A' and movable armature 22, to lock the fixed frame and the movable bracket, so that the seat cannot move along the longitudinal direction. At this time, a front surface of the movable bracket contacts with the buffer band B', and a lower surface is supported by the energy-absorbing bearings H₁, H' on the energy-absorbing plate 5 of the fixed frame. The front shaft D contacts with the upper rail portions 4, 4'. The lock pin 27 contacts with

a back wall L of the pin hole 20. The bearings of the middle shaft M are provided in the rails G, G'. The inner bearings 11, 11' of the back shaft are supported by the lower rail portions 15, 15'. The outside energy-absorbing bearings 3, 3'' of the back shaft are pressed by the energy-absorbing ~~nails~~ rods 9, 9'. In this way, the seat according to present invention mounted on the movable bracket B is stopped from moving forward by the buffer band B' behind the stop plate A, and is stopped from moving backward by the lock pin 27 contacting with a back wall L of the pin hole 20, and is stopped from moving upward due to the fact that the bearings I, I' of the front shaft mounted on the front part of the movable bracket B is held by the upper rail portion 4, 4' positioned in the front and the outside energy-absorbing bearings 3, 3'' of the back shaft are pressed by the energy-absorbing ~~nails~~ rods 9, 9' positioned in the back, and is stopped from moving backward due to the fact that the inner energy-absorbing bearings 11, 11' of the back shaft are supported by the energy-absorbing bearings H, H' on the front part of the movable bracket B and the lower rail portions 15, 15' in the back part of the movable bracket B. In such a way, the stability of the seat can be guaranteed.

On page 24, lines 24-31, to page 25, lines 1-14, please
amend the paragraph to read as follows:

When the motor vehicle operates normally, the bearings I, I' of the front shaft D contact with the upper rail portions 4, 4', and the energy-absorbing nails rods 9, 9' that are fixed on the cover plate F, F' (the cover plate F' not shown) of the energy-absorbing rack, respectively, by the nuts 7, 8, 7', 8' (nuts 7', 8' not shown) contact the outside energy-absorbing bearings 3, 3' of the back shaft. When the motor vehicle collides, due to the effects of the backrest and so on, the front part of the movable bracket B is subjected to a strong force inclined downward. However, due to the fact that the energy-absorbing bearings H, H' mounted on the energy-absorbing plate 5 of the fixed frame contact with the lower surface of the front part of the movable bracket B directly, the strong force inclined downward from the front part of the movable bracket is applied to the energy-absorbing bearings H, H' directly. Because the strength of the movable bracket is considerably greater than that of the energy-absorbing plate 5 provided with the energy-absorbing bearings H, H', the energy-

absorbing plate 5 and so on undergo a certain deformation and absorb a part of the kinetic energy of the seat. At this time, the bearings I, I' of the front shaft are away from the upper rail portions 4, 4' and press against the lower rail portions 15, 15'.

On page 25, lines 15-31, to page 26, lines 1-11, please
amend the paragraph to read as follows:

In a similar way, when the motor vehicle collides, due to the effects of the backrest and so on, the back part of the movable bracket B is subjected to a force inclined upward. At this time, although the energy-absorbing bearings 3, 3' of the back shaft tend to move obliquely upward, because the energy-absorbing bearings are pressed by the energy-absorbing ~~nails~~ rods 9, 9' and the hardness of the back shaft E (made of the high-carbon steel and heat treated) of the seat is considerably stronger than those of the energy-absorbing racks 2, 2', the energy-absorbing racks 2, 2' and so on also undergo a certain deformation and absorb a part of the kinetic energy of the seat. During the above-mentioned process, the energy-absorbing bearings 11,

11' of the back shaft, which was under the load initially, is away from the lower rail portions 15, 15', so that the bearings are free of the force. It is obvious that during the collision the bearings I, I' of the front shaft, the bearings on the middle shaft and the inner bearings 11, 11' of the back shaft which move after the collision are protected by making use of the energy-absorbing device on the fixed frame. In addition, according to the surveys, it has been found that during the collision of the motor vehicle, the devices, such as the rails that are provided above the moveable bracket B and regulate a comfortable driving (or comfortable riding) distance between a driver and a steering wheel and a distance between a driver and an instrument panel in a normal state and the means for regulating the leaning of the backrest and so on causes a certain permanent deformation and loses the function of regulation. They also absorb some kinetic energy of the seat.

On page 29, lines 27-29, to page 3, lines 1-27, please
amend the paragraph to read as follows:

As shown in Figures 15-17, the fundamental structure of the third embodiment according to the present invention is similar to that of the first embodiment, so the same description is not repeated. The following are the differences between the two embodiments: A closing plate 59' is provided on the back part of the fixed frame in the third embodiment to prevent the back shaft from moving away from the fixed frame. There is no middle shaft in the third embodiment. In addition, an energy-absorbing plate 66 positioned on the top surface of the movable bracket is provided on the back end of the movable bracket. The energy-absorbing plate 66 is connected to the back energy-absorbing racks 60, 60' on both sides of the fixed frame by energy-absorbing ~~nails~~ rods 62, 62' on both sides of the movable bracket. The hardness of the movable bracket B is considerably greater than that of the energy-absorbing plate 66. When the motor vehicle collides, a force inclined upward of the back part of the movable bracket is absorbed by the deformation (bent downward slightly) of the energy-absorbing plate, the energy-absorbing nails and the energy-absorbing rack. In a similar way, a part of the kinetic energy of the seat is also absorbed to separate the energy-absorbing nails

rods 62, 62' from the cover plate 61, 61' of the back energy-absorbing rack 60, 60', respectively, so the outside energy-absorbing bearings 3, 3' of the back shaft in the first embodiment are not necessary. In this way, the main components are protected, including the bearings I, I' of the front shaft, the bearings 11, 11' of the back shaft, the movable bracket B, rails G', G'', the front shaft D and the back shaft E. As a result, the risk of the driver and/or the passenger(s) being crushed can be avoided or reduced and the goal of rescuing the injured can be achieved.